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ABSTRACT

Analysis of data from a broad national survey of postsecondary occupational education institutions was used to determine: (1) the demographic and educational characteristics of two at-risk groups--individuals with limited educational achievement and individuals with physical handicaps; (2) the educational programs in which these two groups are currently engaged; and (3) the support mechanisms that institutions offer the groups. Self-reported data were used to identify the two groups. The analysis found that members of the low educational achievement and handicapped populations differ from the average postsecondary student in a number of ways, but in terms of their current educational pursuits, the differences are minimal. Students in the disadvantaged groups are older, disproportionately male, and from lower income families. Similarly, major differences in high school background exist; the disadvantaged groups had lower grades, were more likely to have pursued the general curriculum, and put in less effort into extracurricular activities and homework. Nevertheless, these persons' current grades are only slightly lower than average; they are not any more likely than the average student to have taken developmental education classes; and they have similar attitudes and effort toward their current programs. Finally, the study found that on average, postsecondary institutions are serving disadvantaged populations fairly well, but they need to provide more training for their teachers in working with disadvantaged populations. (KC)

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AN EXAMINATION OF THE DELIVERY OF POSTSECONDARY OCCUPATIONAL EDUCATION TO DISADVANTAGED POPULATIONS

by

Kevin Hollenbeck

U.S. DEPARTMENT OF EDUCATION
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AN EXAMINATION OF THE DELIVERY OF POSTSECONDARY OCCUPATIONAL EDUCATION TO DISADVANTAGED POPULATIONS

The U.S. relies on two principles to guide its primary and secondary educational systems--universality and egalitarianism. Equality of access for all to educational opportunity at these levels represents the systems' operating characteristic and frames policy formation concerning traditionally underrepresented and at-risk populations. Less clear is the overarching framework that guides the postsecondary and adult systems of formal education and the outcomes of such education for disadvantaged populations. This paper discusses data collected from a nationally representative sample of public institutions delivering postsecondary occupational education concerning two particular groups: students with low educational achievement and students with handicapping conditions. See Hollenbeck (1988) for a complete documentation of the data and survey methodology.

Purpose and Objectives

Relative to liberal arts or other baccalaureate-degree level programs at universities or colleges, programs at the community and junior colleges and technical institutes that are predominant in the delivery of postsecondary occupational education serve a larger share of disadvantaged populations. There is disagreement over how beneficial this greater access really is (particularly concerning ethnic minorities).

Astin and others (1982) harshly criticize 2-year institutions on the grounds that completion rates (defined as attainment of the baccalaureate) are much lower for minorities that start out at 2-year institutions than minorities that start out at universities and colleges. This finding seems to be in accord with "cooling out" theory. According to that theory, postsecondary occupational education is a safety valve that accommodates those individuals that aspire to the more economically rewarding occupations requiring a college degree but are not capable of attaining that degree.

Moore (1976) notes that 2-year institutions rely on two main mechanisms to support minorities--developmental education programs and individualized counseling. However, he finds serious flaws with each.

Cohen and Brawer (1982) counter these arguments by pointing out that individuals have a myriad of reasons for attending postsecondary institutions and therefore pipelining individuals to the baccalaureate degree is not an appropriate objective or measure to evaluate 2-year institutions. Furthermore, there is no evidence that the (low) completion rates for minorities differ from the completion rates for nonminorities. In other words, they point out that the functions of 2-year institutions are many, of

which providing a foundation for further higher education is just one.

Access is an important function and one that (public) 2-year institutions seem to be achieving. As Gilbert (1979) indicates:

> Are community colleges meeting the needs of the poorly educated, culturally "different" minorities? There is a two-part answer to that question.
>
> 1. The colleges are **serving** minorities. National data for minorities were not collected in 1977. In 1976, 38.8 percent of all minority students in higher education were in two-year colleges. Almost one-fourth of all two-year college students were of a racial minority. This would indicate that the open door is wide open. Further, there is a great variety of developmental programs available on nearly every two-year college campus in the country. These are very strong indications of the purpose of the community college. The intent of the two-year college is to accept all persons and to remediate deficiencies where necessary.
>
> 2. While minority students are enrolling, success with remediation is not universal. Edmund J. Gleazer, Jr., president of the American Association of Community and Junior Colleges, at a staff meeting at AACJC headquarters on February 5, 1979, stated that there is evidence of a "growing chasm between the academic 'haves' and 'have nots.'" Proficiency levels are moving up in grade schools, but are not yet up in high schools. Minority students are often the ones caught in this lag. (p. 7)

Gilbert has neatly drawn attention to the fact that the educational problems for disadvantaged are twofold: access and efficacy. That is, gaining equal access or enrollment is part of the problem. Achieving positive outcomes <u>given</u> enrollment is the other part of the problem. A recent study by a blue ribbon commission on community and junior colleges indicates that these two aspects of the problem have not been resolved since the Gilbert statement. As reported in <u>The Chronicle of Higher Education</u> (April 27, 1988), key recommendations in the report entitled, "Building Communities: A Vision for a New Century," include the following:

- The nation's community colleges should vigorously reaffirm equality of opportunity as an essential goal. Every college should declare, with pride and conviction, its determination to serve all ages and racial and ethnic groups . . . develop an aggressive outreach plan for disadvantaged students.

- We urge that community colleges give more attention to student retention . . . such a program should include

advising, an "early warning" system to identify at-risk students, plus career counseling and mentoring arrangements. Over the next decade, the goal should be to reduce by 50 percent, the number of students who fail to complete the program in which they are enrolled.

To answer the debate as to the positive or negative effects of a 2-year institution on minorities and other disadvantaged groups of students, one needs to evaluate rigorously the economic and achievement outcomes of these individuals. Such rigorous evaluations have not been undertaken, primarily because of lack of data.

The purpose of this paper is to report the findings from analyses of data from a broad national survey of postsecondary occupational education institutions. Because the data set has limited outcome information, the study addresses questions dealing with the educational experiences and background characteristics of current students. In particular, the following questions are addressed for two specific groups--individuals with limited educational achievement and individuals with physical handicaps:

- What are the demographic and educational characteristics of these two at-risk populations?
- What educational programs and experiences are they engaged in?
- What support mechanisms for these groups do institutions offer?

The answers to these questions contribute information to make policy and practice recommendations and to guide the direction of future research. These recommendations and guidelines are presented in the final section of the paper.

Data and Analyses

Student Characteristics

Self-reported data were used to identify the two groups. The handicapped group was defined as any student that reported having at least one of the following conditions:

- Specific learning disability (1.3%)
- Visual handicap (not correctable) (1.2%)
- Hard of hearing (2.0%)
- Deafness (0.2%)
- Speech disability (0.2%)
- Orthopedic handicap (2.3%)
- Other physical disability or handicap (2.6%)

A total of 315 student respondents (9.9%) indicated having at least one of these conditions. The U.S. Department of Education

(1988) reports that approximately 4.42 million individuals between the ages of 0-21 were handicapped and were assisted under the Education of the Handicapped Act. The U.S. Census Bureau (1987) projects the total U.S. population in these age ranges to be 78.52 million. Using these data to estimate the incidence of handicapping conditions leads to an estimate of 5.6 percent. The individuals assisted likely underestimates the total handicapped population in those age ranges, however.

The low educational attainment group was defined as either a nongraduate of high school or an individual reporting mostly C's or lower in high school and scoring below 800 on the combined SAT (if they took that test) or below a 20 on the ACT. A total of 525 respondents met these criteria (15.8 percent of the sample).

Exhibit 1 describes certain socioeconomic characteristics of the two disadvantaged populations. The exhibit shows that these two populations are quite similar (in fact, 28 percent of the handicapped population are low educational achievers) and that both are dissimilar from the population of students as a whole. For instance, both groups are older--just over 30 percent of the entire student sample is over 30, whereas about 50 percent of the handicapped population is that old and over 40 percent of the low educational achievement group is that old. About two-thirds of the disadvantaged populations are male, whereas just under half of the total sample is male. Whites are slightly overrepresented within these two populations, but the difference from the total sample is not statistically significant.

The two at-risk populations being examined reported significantly lower levels of family income. Over 40 percent had annual family incomes of less than $12,000; whereas less than 30 percent of the total sample were in those income levels.

Secondary education. Several questions were posed to the student respondents concerning their secondary educational experiences. Exhibit 2 provides a summary of this data. The exhibit shows that the low educational achievement population is slightly more likely to have attended a public high school, although the difference is not statistically significant. However, large and significant differences in high school curriculum are reported in the exhibit. About 70 percent of the low educational achievers and 60 percent of the handicapped respondents have reported a general curriculum as compared to just under 50 percent for the total sample. Less than 15 percent of the low educational achievers and 25 percent of the handicapped individuals have taken an academic/college prep curriculum, whereas about one-third of the total sample reported taking that program.

Not surprisingly, the low educational achievers spent much less time on homework in high school and participated in fewer extracurricular activities than did the average student. About 20 percent of that group reported either never having been assigned

EXHIBIT 1

SOCIOECONOMIC CHARACTERISTICS OF THE LOW EDUCATIONAL ACHIEVEMENT, HANDICAPPED, AND TOTAL STUDENT POPULATIONS

Characteristic	Low Educational Achievement	Handicapped	Total
Age			
≤ 18	2.66%	1.59%	1.83%
19-20	12.17	15.87	23.78
21-22	13.50	10.48	16.49
23-25	12.74	12.06	12.67
26-30	15.02	11.43	13.93
31-40	31.56	23.49	20.48
41-55	11.60	20.32	8.74
56+	0.76	4.76	2.07
Gender			
Male	64.05%	62.74%	48.44%
Female	35.95	37.26	51.56
Race			
Black nonhispanic	8.17%	6.67%	9.88%
White nonhispanic	82.32	83.17	80.12
Other	9.51	10.16	10.00
Financially independent?			
Yes	68.19%	69.97%	62.76%
No	31.81	30.03	37.24
Handicapped?	28.25%	--	9.90%
Family income			
< $8,000	31.34%	31.60%	19.73%
8,000-11,999	10.98	12.70	9.44
12,000-15,999	8.78	9.45	9.00
16,000-19,999	8.78	8.79	9.25
20,000-24,999	9.58	12.70	11.84
25,000-34,999	12.18	9.45	17.36
35,000-49,999	10.98	10.10	14.11
50,000+	7.39	5.21	9.28

Source: Data from Postsecondary Occupational Education Delivery: An Examination project student survey conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Sample size for the Low Educational Achievement population is 525, Handicapped population is 315, and Total population is 3,330.

EXHIBIT 2

SECONDARY SCHOOL EXPERIENCES OF THE LOW EDUCATIONAL ACHIEVEMENT, HANDICAPPED, AND TOTAL STUDENT POPULATIONS

Characteristic	Low Educational Achievement	Handicapped	Total
Type of high school			
Public	93.1%	91.0%	91.0%
Private-religious	5.7	5.3	7.1
Private-other	1.2	3.7	1.9
High school program			
General	69.3%	58.4%	49.9%
Academic/college prep	13.8	23.6	32.5
Vocational	16.9	18.1	17.6
High school grades			
A/A-	0.0%	22.3%	32.7%
B/B-	0.0	48.9	51.4
C/C-	94.1	27.2	15.0
D or below	5.9	1.6	0.9
Time spent on homework in high school			
None	19.1%	9.7%	5.6%
Less than 3 hours/week	43.8	33.0	35.2
3-5 hours/week	23.6	31.7	30.2
5-10 hours/week	11.6	19.7	21.5
10+ hours/week	1.9	6.8	7.5
Number of extra-curricular activities			
0	21.9%	14.6%	11.7%
1-2	39.7	35.6	31.5
3-5	31.4	38.4	40.0
5+	7.0	11.4	16.8

Source: Data from Postsecondary Occupational Education Delivery: An Examination project student survey conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Sample size for the Low Educational Achievement population is 525, Handicapped population is 315, and Total population is 3,330.

homework or never doing the homework that was assigned. About 45 percent reported having spent less than 3 hours/week on homework. These percentages compare to 5 percent and 35 percent for the total sample. Over one-fifth of the low educational achievers reported participating in zero extracurricular activities in high school as compared to 12 percent of the total sample. About 40 percent reported just 1 or 2 extracurricular activities as compared to about 30 percent for the total sample.

While the causality of the relationship between grades in high school, time spent on homework, and participation in extracurricular activities is complex with many mediating factors, it seems clear from the survey data that a large share of the low educational achievement population (approximately 60 percent) did not put in much effort in either homework or extracurricular activities.

The handicapped group closely parallels the total sample in time spent on homework in high school and participation in extracurricular activities (slightly less participation than the average). In this respect, they differ from the low educational achievers.

Current educational activities. The next set of data that is examined is the educational activities being undertaken by the students at the time of the survey. Exhibit 3 presents this data for the two disadvantaged groups being considered. Of particular interest is the fact that the low educational achievement and handicapped students are only slightly more likely to have enrolled in developmental education classes than the total sample. In fact, for the low educational achievers, only courses in basic math and study skills have statistically significant differences from the total sample and both of these differences are less than 5 percent. None of the developmental course enrollment percentages for handicapped students are statistically significantly different from the total sample.

A slightly larger share of both disadvantaged populations report being full-time students than of the total sample, and similarly a larger share indicate that they had received a loan to finance their educational costs. The survey asked students to report their average grades from the institution being attended. Across the entire sample, reported grades were quite high--about 95% of respondents indicated a B- average or better. Interestingly, the self-reported grades for the two disadvantaged groups are only slightly lower than average. It is likely that the self-reported grade data are biased upward, but recall that the low educational achievers are defined by self-reported high school grades.

The survey asked students for their response to several attitudinal questions concerning the institution they were attending. A 5-point Likert scale was used for response. The mean responses are reported in exhibit 4. The means are somewhat

EXHIBIT 3

CURRENT EDUCATIONAL ACTIVITIES OF THE LOW EDUCATIONAL ACHIEVEMENT, HANDICAPPED, AND TOTAL STUDENT POPULATIONS

Characteristic	Low Educational Achievement	Handicapped	Total
Full-time status			
Full-time	80.7%	81.7%	77.4%
Part-time	17.1	16.3	20.1
Received a loan to finance costs	29.7%	30.9%	27.2%
Enrolled in developmental courses--			
Basic English	40.5%	42.9%	38.9%
Basic Math	44.0%	41.3%	39.3%
How to study	15.7%	16.0%	12.5%
Basic Science	13.0%	12.5%	11.8%
Careers	31.1%	35.1%	32.5%
Current grades			
A/A-	51.0%	54.0%	62.6%
B/B-	34.3	38.8	31.7
C/C-	14.5	7.2	5.5
D or less	0.2	0.0	0.2
Participate in coop ed class	11.4%	8.9%	13.3%

Source: Data from Postsecondary Occupational Education Delivery: An Examination project student survey conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Sample size for the Low Educational Achievement population is 525, Handicapped population is 315, and Total population is 3,330.

EXHIBIT 4

MEAN ATTITUDINAL DATA FOR THE LOW EDUCATIONAL ACHIEVEMENT, HANDICAPPED, AND TOTAL STUDENT POPULATIONS

Attitude	Low Educational Achievement	Handicapped	Total
"The course work in this institution is more difficult than high school."	2.84	2.88	2.95
"On average, the instructors seem to care about students."	3.48	3.45	3.45
"The students here have a lot of school spirit."	2.58	2.58	2.54
"I had no idea how hard it would be."	2.55	2.45	2.42
"The library facilities are good."	2.99	2.96	2.99
"The equipment is good."	3.21	3.14	3.18
"This institution doesn't place as many students as they advertise."	2.18	2.16	2.08

Note: Attitudinal scale ranges from 1 = Strongly disagree to 5 = Strongly agree.

Source: Data from Postsecondary Occupational Education Delivery: An Examination project student survey conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Sample size for the Low Educational Achievement population is 525, Handicapped population is 315, and Total population is 3,330.

difficult to interpret and because of the scale that was used, relatively small differences in average ratings may reflect important differences. Entries in the exhibit that are less than 3 imply that, on average, the population disagreed with the statement--the smaller the number, the greater the extent of disagreement. Conversely, entries that are greater than 3 indicate agreement, and the larger the average, the stronger the agreement.

The picture that the exhibit portrays is that members of the two disadvantaged groups are in stronger disagreement with the statement, "The coursework in this institution is more difficult than high school," than the sample as a whole. In other words, they report the coursework to be as easy or easier than high school. The low educational achievement population disagreed less strongly than the total sample with the statement that the institution doesn't place as many students as they advertise.

Other training characteristics. As Willke (1987) pointed out, significant amounts of training may be attained by postsecondary occupational education students outside of or prior to their current institutional setting. To examine this phenomenon, data were gathered in the survey concerning prior postsecondary educational experience, military service, and employment experiences. Significant differences between the disadvantaged and the general populations of students were found in all three of these dimensions.

The data are summarized in exhibit 5. The percentages of students that had attended some type of postsecondary institution prior to (or concurrently with) their current institution are virtually identical for the disadvantaged groups and the total sample--37 percent, 39 percent, and 37 percent for the low educational achievement group, the handicapped, and the total sample, respectively. The types of institutions differ, however. The low educational achievers have a much higher likelihood of having attended a community or junior college than the handicapped population or the total sample and a much lower likelihood of having attended a college or university. Interestingly, the low educational achievement students who had attended a postsecondary institution are slightly more likely to have had received a degree.

Both groups had a higher percentage of individuals who had served or were serving in the military than the total sample as shown in the exhibit. The percentage for the handicapped group was twice as great as the percentage for the total sample. However, among the individuals with military service in the disadvantaged groups, only about 17 percent of the training was related to their present educational pursuit, whereas about one-quarter of the total sample who had previously been engaged in military service reported related training.

EXHIBIT 5

PRIOR POSTSECONDARY INSTITUTION ATTENDANCE, MILITARY SERVICE, AND CURRENT EMPLOYMENT OF THE LOW EDUCATIONAL ACHIEVEMENT, HANDICAPPED, AND TOTAL STUDENT POPULATIONS

Characteristic	Low Educational Achievement	Handicapped	Total
Prior postsecondary attendance			
Percentage that had attended	36.90	38.91	37.17
Type of Institution			
--Community College	31.75%	20.34%	23.71%
--Technical Institute	20.63	16.95	14.36
--University/ College	31.22	43.22	45.04
--Other	16.40	19.49	16.89
Percentage that received a degree	28.08	22.76	25.93
Military Service			
Percentage served	21.47	27.04	13.16
Percentage of those that served that received related military training	17.09	17.90	23.67
Current employment			
Percentage working	42.03	37.54	56.26
Mean hourly wage	$6.93	$6.93	$5.72
Percentage that are working that are receiving relevant work experience	40.09	40.67	42.33

Source: Data from Postsecondary Occupational Education Delivery: An Examination project student survey conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Sample size for the Low Educational Achievement population is 525, Handicapped population is 315, and Total population is 3,330.

Finally, the percentage of students in the total sample who reported that they were currently working is about 56 percent--significantly higher than the percentage for either of the disadvantaged populations. About 40 percent of the students in these groups are working. For those working, the mean hourly wage is about $7.00/hour for the low educational achievers and handicapped individuals as opposed to an average of about $5.70 for the total sample. The difference in means may be explained by occupational differences as the disadvantaged populations are older and have a higher proportion of males. Furthermore, with lower incomes, the needs of the disadvantaged groups are greater and thus wage demands are higher.

Summary. Members of the low educational achievement and handicapped populations differ from the average postsecondary student in a number of ways, but in terms of their current educational pursuits, the differences are minimal. Students in the disadvantaged groups are older, disproportionately male, and from lower income families. Similarly, major differences in high school background exist, with the disadvantaged groups having had lower grades, more likely to have pursued the general curriculum, and having put in less effort in extracurricular activities and homework. Nevertheless, these individuals' current (self-reported) grades are only slightly lower than average; they are not any more likely than the average student to have taken developmental education classes; and they have similar attitudes and effort toward their current program as the total sample.

These data confirm a picture of postsecondary occupational education as an enterprise with broad access and service to all populations. Furthermore, backgrounds do not predict or limit success in this enterprise. The next section examines the question of how well the institutions seem to support the needs of disadvantaged students.

Institutional Characteristics

The prior sections of this paper examined the experiences of students from two particular disadvantaged populations in their postsecondary occupational settings. Next, attention is turned to the institutions' perspectives and, in particular, the following three issues: the need for attention to the educational concerns of disadvantaged students (measured by enrollment patterns), the priorities set by the institutions (measured primarily by goal statements and institutional policies), and the availability of services. Finally, the extent to which there is balance or imbalance between service needs, priorities, and service availability is analyzed.

Need. Exhibit 6 provides descriptive data concerning the communities served by the institutions and enrollment characteristics of the institutions themselves. Community and institutional data were reported by administrators, whereas

EXHIBIT 6

COMMUNITY AND ENROLLMENT STATISTICS
THAT ARE INDICATORS OF NEED FOR SERVICES
FOR DISADVANTAGED STUDENTS, BY TYPE OF INSTITUTION

Characteristic	Institutional Type			Total
	Community/ Junior Colleges	Technical Institutes	Colleges/ Universities	
Community (Service area)				
Mean percentage minority	22.6	20.0	20.5	20.9
Mean percentage econ. disadvantaged	19.6	25.9	15.7	20.5
Enrollment				
Institutional totals (reported by administrators)				
Mean percentage minority	22.2	18.1	18.8	20.3
Mean percentage handicapped	2.6	5.1	3.5	3.6
Mean percentage LEP	5.8	1.8	3.1	4.1
Program/Department totals (reported by chairpersons)				
Mean percentage minority	30.2	26.6	21.5	27.5
Mean percentage handicapped	2.5	2.9	2.3	2.6
Mean percentage LEP	5.1	2.4	3.6	4.1
Mean percentage econ. disad.	22.2	29.0	16.1	22.8
Program/Department totals (reported by faculty)				
Mean percentage minority	24.7	20.0	16.7	22.0
Mean percentage handicapped	2.2	3.5	2.4	2.6
Mean percentage LEP	5.2	3.6	5.1	4.8
Mean percentage econ. disad.	22.5	29.3	15.5	23.1

Source: Data from Postsecondary Occupational Education Delivery: An Examinination project administrator, administrative supplement, placement director, chairperson, and faculty surveys conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. Completed sample sizes were as follows:

	Community/ Junior Colleges	Technical Institutes	Colleges/ Universities	Total
Administrator	191	117	67	377
Administrative Placement Supplement Director	176	105	59	342
Chairperson	175	110	73	367
Faculty	326	162	117	605
	665	344	228	1,239

program/departmental data were reported by chairpersons and faculty. The table presents two statistics concerning community characteristics that are being used here as indicators of need--mean percentage of the population with minority ethnicities and mean percentage of the population that is economically disadvantaged. The former approximates 20% and varies only slightly across the three types of institutions. The percentage of the U.S. population that is of minority ethnicity is 15.4% (U.S. Census Bureau, 1988.) The discrepancy likely stems from an overrepresentation of these institutions in urban areas and in the South Census Region. The mean of the reported percentage of the population that is economically disadvantaged is also around 20%, but here there is more variation by institutional type. For the localities served by universities/colleges offering occupational programs, the mean is around 15%. For localities with technical institutes, the mean is over 25%; for localities with community colleges, the mean is 20%.

For all institution types, the percentage of enrollments that are minority are slightly lower than the percentages for the localities. However, the data on percentage minority enrollments in departments/programs reported by chairpersons and faculty members are higher than the institutional data. This suggests a slight overrepresentation of minorities in the occupational programs relative to the entire institution. Enrollment patterns of students that are economically disadvantaged resemble those for the community data; in fact, the mean percentages are slightly higher.

The exhibit shows that the percentages of students that are handicapped and the percentages of students that are limited English proficient (LEP) are small--varying between 2 to 5 percent. The respondents from the type 1 institutions (community and junior colleges) consistently reported much higher percentages of LEP students than handicapped students, by about a 2-1 margin. At the other two types of institutions, the enrollment percentages for these two groups are closer.

Priorities. Exhibit 7 displays statistics about variables that gauge the goals/policy concerns of these institutions toward disadvantaged students. The first item of data presented there concerns the degree to which the institutions may screen out educationally disadvantaged students through their admissions process. Over 50% of the type 1 and type 2 institutions reported either no admission requirements or an open-entry admissions policy. This compares to approximately 10% of colleges/universities that reported these kinds of admissions policies. Clearly, these latter institutions do more screening and are therefore more likely to screen out disadvantaged students (particularly, the educationally disadvantaged.)

The institutions' administrators were asked about whether certain policy changes had been considered or implemented over the previous two years. The exhibit shows that disadvantaged

EXHIBIT 7

GOALS AND PRIORITIES INDICATORS
TOWARD DISADVANTAGED
STUDENT SERVICES, BY TYPE OF INSTITUTION

Characteristic	Institutional Type			Total
	Community/ Junior Colleges	Technical Institutes	Colleges/ Universities	
Percentage of institutions reporting admission requirements as--				
"None"	11.7	39.2	3.5	18.6
"Open door"	41.1	20.6	8.2	29.0
Percentage of institutions that implemented or considered policy changes of--				
Tighter admission standards	29	34	61	36
Assessment of all incoming students	90	85	91	88
Stiffer grading standards	55	37	50	48
Retention of special needs students	84	63	79	76
Percentage of institutions providing facilities/ instructors to--				
GED program	56	61	20	51
JTPA program	76	84	38	72
Percentage of placement offices where emphasis on helping special students was--				
Lowest ranked goal	36.4	27.0	41.8	34.6
Next to lowest ranked goal	26.1	22.0	34.3	26.5
In highest 4 ranks	37.5	51.0	13.9	38.9
Percentage of programs/department that implemented or considered recent program/department policy changes of--				
Retention of special needs students	49	48	34	46
Time spent on special materials				
Chair	1.73 hours	1.85	1.48	1.70
Faculty	1.83	1.90	1.33	1.78

Source: Data from Postsecondary Occupational Education Delivery: An Examination project surveys conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. See source note in exhibit 6 for completed sample sizes.

populations were a priority for most institutions. About 80% of type 1 and type 3 institutions had placed special emphasis on retention of special needs students, whereas about 63% of the technical institutes had done so. The chairpersons were asked to report whether their programs had similarly considered/implemented policies to place emphasis on the retention of special needs students. In this case, about half of the type 1 and type 2 chairpersons reported that their departments had done so; whereas about a third of university/college occupational programs reported such action. The exhibit further shows that about 60% of type 3 institutions had considered tighter admission standards and that about half of type 1 and type 3 institutions had considered/ implemented more strict grading standards. About 90% of all the institutions had implemented assessment of all incoming students.

Another indicator of the institutions' priorities toward disadvantaged students is whether the institution provides facilities or instructors for GED or JTPA-type programs. The exhibit shows that a far larger share of type 1 and type 2 institutions do so than do type 3 institutions. Almost 60% of the former had provided facilities or instructors for GED programs and about 80% had provided either facilities or instructors for JTPA programs. These linkages are apparently of much lower priority at colleges/universities where the percentages are 20% and 38%, respectively. The chairs and faculty were asked to report time spent during the work week on various activities. One of the categories was "developing alternative activities and materials to better meet the needs of students who require special help (e.g., potential dropouts, handicapped students)." On average, the chair and faculty respondents at community/junior colleges and technical institutes reported spending almost 2 hours per week on this activity; the respondents at colleges/universities spent less than 1.5 hours/week.

Placement officials were asked to rank the emphasis placed on various institutional goals by the placement program. Exhibit 7 shows that the goal to "help particular special groups of students such as the handicapped, economically disadvantaged, and LEP progress through the institution" ranked last (6th out of 6) at 36%, 27%, and 42% of the type 1, 2, and 3 institutions, respectively. It ranked higher than 5th (next to lowest rank) at only 38%, 51%, and 14%, respectively.

Service availability. The three predominant types of instructional interventions that can be undertaken for disadvantaged students are (a) developmental education courses, (b) individualized counseling/tutoring, and (c) preservice or inservice training of instructors. Data from the survey on these types of services are provided in exhibit 8.

Developmental education courses and opportunities for individualized counseling/tutoring were reported as available at almost all institutions. The faculty at 80-90% of the institutions responded that developmental education courses for

EXHIBIT 8

AVAILABILITY OF SERVICES FOR DISADVANTAGED STUDENTS, BY TYPE OF INSTITUTION

Characteristic	Institutional Type			Total
	Community/ Junior Colleges	Technical Institutes	Colleges/ Universities	
Placement office services				
Percentage of offices that offer occupational/ career info. in a 2nd language	17.7	11.0	8.2	13.7
Percentage of students that participate in individual counseling	43.4	55.1	41.5	46.4
Percentage of chairpersons or faculty with preservice/inservice training in--				
Teaching handicapped (chair)	25.1	37.5	16.5	26.6
Teaching handicapped (faculty)	35.4	37.8	19.5	33.1
Working with LEP students (chair)	7.7	10.9	7.8	8.5
Working with LEP students (faculty)	13.3	13.7	11.1	13.0
Teaching disad. & dropout-prone students (chair)	28.0	37.6	14.8	27.9
Teaching disad. & dropout-prone students (faculty)	32.9	40.7	27.4	34.0
Time spent in tutoring students who need special help				
Chair	2.4 hours	2.1	2.1	2.2
Faculty	2.7	2.5	2.4	2.6
Percentage of institutions with--				
Developmental ed - reading avail.	91.6	81.8	83.8	87.5
Developmental ed - math avail.	92.9	85.2	89.7	89.7
Intensive counseling avail.	79.0	74.6	78.5	77.7
Special tutorial services avail.	88.2	67.3	86.0	82.0
Percentage of students that participate in--				
Develomental ed - reading	14.1	11.2	13.4	13.2
Developmental ed - math	14.7	17.0	17.8	16.0
Individualized counseling	15.8	15.2	14.3	15.3
Special tutoring	10.9	8.8	13.1	10.8

Source: Data from Postsecondary Occupational Education Delivery: An Examination project surveys conducted by the National Center for Research in Vocational Education, The Ohio State University, in Spring, 1987. See source note in exhibit 6 for completed sample sizes.

reading and mathematics, and resources for intensive counseling/special tutoring were available at their institutions. Little variation is shown in the exhibit across the three institution types, although it appears that community/junior colleges place higher emphases on these services than do either of the other two types of institutions; for all four types of services, the availability rate at community/junior colleges was the highest. Surprisingly little differences were observed in the percentages of students that participate in these four interventions, however. At all institution types, approximately 10-15% of students were reported to participate, at least once during their enrollment, in developmental education activities, individualized counseling, or special tutoring opportunities.

A significant, although minority, share of the faculty and chairpersons reported having received preservice or inservice training in techniques/methods of teaching handicapped students and teaching disadvantaged or dropout-prone students. Approximately 30-40% of faculty and chairpersons at community/junior colleges and technical institutes reported having such specialized training. Approximately 15-20% of respondents at colleges/universities had such training. A much smaller share of respondents reported being trained to work with LEP students--approximately 8-13% and these responses came predominantly from states with significant Hispanic populations.

Another question for chairpersons and faculty was time spent in "Tutoring and working with students who need special help." Chairpersons reported spending just over 2 hours per week engaged in this activity. Faculty, as would be expected, spent more time; approximately 2.5 hours per week on average.

Finally, the exhibit provides information concerning the placement office's programs. About one in seven institutions offers occupational and career information in a second language. Further the placement officials reported that on average 40-50% of the students at their institutions would avail themselves of individualized counseling services. These latter percentages are greater than the share of disadvantaged students, so they may include individualized counseling for purposes other than academic assistance to overcome disadvantagedness.

Balance between need, priorities, and service availability. Exhibits 6-8 present data separately concerning the issues of need for, priority of, and services available for appropriate educational interventions for disadvantaged students. To complete the analyses, we examine these issues in a joint manner. That is, we attempt to answer the question of the extent to which those institutions with the greatest needs also place the highest priority and have the services necessary for students. This issue of balance is examined through correlational analyses.

The following survey variables were used to construct an indicator variable representing the need for services (or demand for services):

Variable	Source
Percentage of the population in the area served by the institution that is of minority ethnicity	Administrative official survey supplement
Percentage of the population in the area served by the institution that is economically disadvantaged	Administrative official survey supplement
Percentage of institutional enrollment that is of minority ethnicity	Administrative official survey supplement
Percentage of institutional enrollment that is handicapped	Administrative official survey supplement
Percentage of institutional enrollment with limited English proficiency	Administrative official survey supplement
Percentage of institutional enrollment with family income less than $10k	Administrative official survey supplement
Percentage of program/dept. enrollment that is of minority ethnicity	Chairperson survey
Percentage of program/dept. enrollment that is handicapped	Chairperson survey
Percentage of program/dept. enrollment with limited English proficiency	Chairperson survey
Percentage of program/dept. enrollment that are econ. disadvantaged	Chairperson survey
Percentage of instructor's students that is of minority ethnicity	Faculty survey
Percentage of instructor's students that is handicapped	Faculty survey
Percentage of instructor's students with limited English proficiency	Faculty survey
Percentage of instructor's students that are econ. disadvantaged	Faculty survey

The following variables were used to construct an index variable representing the goals and priorities of the institutions toward disadvantaged students:

Variable	Source
Degree of importance attached to the goal of developing basic skills	Administrative official survey
Level of agreement with the statement that "open-entry policy restricts program offerings"	Administrative official survey
Institution has recently implemented or considered tighter admission standards	Administrative official survey
Institution has recently implemented or considered required assessments of all incoming students	Administrative official survey
Institution has recently implemented or considered stiffer grading standards	Administrative official survey
Institution has recently implemented or considered placing special emphasis on retention of special needs students	Administrative official survey
Institution provides instructors or facilities for students preparing for GED	Administrative official survey
Institution provides instructors or facilities for JTPA programs	Administrative official survey
Importance of the goal of helping special groups of students progress through the institution	Placement director survey
Level of agreement with the statement that "open-entry policy restricts program offerings"	Chairperson survey
Time spent on developing alternative activities and materials for students who require special help	Chairperson survey
Time spent on developing alternative activities and materials for students who require special help	Faculty survey
Rank of enhancement and reinforcement of basic skills as occupational program goal	Faculty survey
Rank of promotion of access and equity as occupational program goal	Faculty survey

The following variables were used to construct an indicator of the services (or specialized training) available at each institution:

Variable	Source
Percentage of institution's handicapped students enrolled in developmental education	Administrative official survey supplement
Percentage of institution's LEP students enrolled in developmental education	Administrative official survey supplement
Institution provides career/ occupational information in second language	Placement director survey
Percentage of students that underwent individualized counseling	Placement director survey
Percentage of students in program that took developmental instruction--basic reading	Chairperson survey
Percentage of students in program that took developmental instruction--basic math	Chairperson survey
Percentage of students in program that received intensive counseling from dept. staff	Chairperson survey
Percentage of students in program that received specialized tutoring assistance	Chairperson survey
Training in methods for teaching the handicapped	Faculty survey
Training in methods for teaching LEP students	Faculty survey
Training in teaching disadvantaged and at risk students	Faculty survey
Training in working with students in programs nontraditional for their sex	Faculty survey
Availability of developmental instruction--basic reading	Faculty survey
Availability of developmental instruction--basic math	Faculty survey
Availability of individualized and intensive counseling from dept. staff	Faculty survey
Availability of specialized tutoring assistance	Faculty survey

The method that was used involved transforming all of these variables to a common scale* and then adding them together to derive an index for each institution. These indices were then considered to be indicators of need, priority, and service availability. Exhibit 9 shows the mean value for these indices as well as means for the total of the three, by institution type. It further provides correlations between the three indicators. Note that the data in the table are comparable across rows only.

The data in the exhibit clearly demonstrate that the third institution type, i.e., colleges/universities with occupational programs, lag behind the other two types of institutions in terms of need, priority, and service availability. The discrepancy is particularly large for priority and service availability which are under the control of the institutions, and less dramatic for need, which is exogenous to the institution.

The correlations between need, priority, and services available were all quite high indicating reasonable balance at the individual institutions. Only three of the 12 correlations displayed were nonsignificant. With the exception of these correlations, which showed relatively more variation between need and priority, it seems as though institutions were fairly consistent in the extent to which they place relevance and in resources they devote toward disadvantaged populations.

There seems to be regional variation in the emphases placed on disadvantaged students, however. Exhibit 10 shows the regional composition of the top and bottom deciles of the distributions of the three indices. Ninety percent of the institutions with the most need (as measured by the indicator), are in the South or West. Over 70% of the institutions with the lowest need are in the Northeast and North Central. The pattern repeats itself for the priority and service availability indicators; over 80% of the top decile of institutions in terms of priority toward special students were in the South and West and about 70% of the top decile of institutions in terms of services availability were in those two regions.

Discussion

The data reported in this paper demonstrate that postsecondary occupational education can and does serve disadvantaged populations of students. Perhaps the most important finding is that the two groups of students examined in depth--low educational achievers and handicapped students--are participating in and achieving in their postsecondary pursuits at an overall average that approximates the total population of postsecondary

*The scale that was used ranged from 0 to 10 and approximated the deciles of the frequency distribution for continuous variables and was somewhat arbitrarily assigned for discrete variables. Details on the transformation are available on request.

EXHIBIT 9

INDICATORS OF NEED FOR SERVICES FOR, ATTITUDE TOWARD AND AVAILABILITY OF SERVICES FOR DISADVANTAGED STUDENTS, BY INSTITUTION TYPE

Indicator	Institutional Type			Total
	Community/ Junior Colleges	Technical Institutes	Colleges/ Universities	
Mean value for--				
Need index (Maximum potential = 140)	75.1	78.0	71.0	75.2
Attitude index (Maximum potential = 140)	89.4	90.9	73.4	86.9
Availability index (Maximum potential = 160)	96.9	93.2	85.1	93.6
Total	259.9	261.0	228.6	254.2
Correlations between--				
Need and attitude	.111	.334*	.126	.203*
Need and availability	.362*	.400*	.425*	.387*
Attitude and availability	.273*	.288*	.257	.291*

* Statistically significant at .01 level.

EXHIBIT 10

REGIONAL COMPOSITION OF THE TOP AND BOTTOM DECILES OF THE DISTRIBUTIONS OF THE NEED, ATTITUDE, AND AVAILABILITY INDEX INDICATORS

Index Indicator	Region			
	Northeast	North Central	South	West
Need				
Top decile	2.5%	7.5	55.0	35.0
Bottom decile	30.0%	42.5	22.5	5.0
Attitude/Priority				
Top decile	2.8%	16.7	63.9	16.7
Bottom decile	34.2%	26.3	26.3	13.2
Availability				
Top decile	10.0%	22.5	55.0	12.5
Bottom decile	17.1%	34.2	39.0	17.1

students. This achievement is being attained despite documented low achievement and participation in high school. It is unknown to what extent this positive finding results from the effort and determination of the students and to what extent it results from the resources and concern of the institution. It seems fair to conjecture that it is a combination of the two.

It must be noted, however, that examining overall average data masks individual problems or outstanding individual successes. Furthermore, it is unlikely that the results would generalize to the entire population of disadvantaged individuals (i.e., including the individuals that don't pursue postsecondary education.) Those individuals that overcome their disadvantages and poor performance or effort in the secondary school are probably a <u>select</u> set. In other words, they may differ from other disadvantaged individuals in important nonobservable ways such as motivation or ability. The lack of generalizability should not be a big concern, though, because it is not the case that postsecondary occupational education should be the conduit to overcome barriers for <u>all</u> members of the disadvantaged populations.

Postsecondary occupational instruction is being delivered, for the most part, in institutions that have other missions. The occupational programs must <u>always</u>, therefore, compete for resources and priority. It might be hypothesized that this competition is keenest in the college/university setting and may explain why it is those occupational programs that serve and emphasize disadvantaged students least well of the three types of institutions. For virtually every measure of need, priority, or service availability, the programs at college/universities came in third of the three types. Students from disadvantaged populations need to be made aware of this fact when they are making their institutional choices.

The data indicate some discrepancy between the institutional administrator and the actual program faculty and chairpersons in the goal of better disadvantaged student retention. This discrepancy is largest in colleges/universities. Exhibit 7 shows that whereas 81 percent of the administrative officials at community/junior colleges report implementation or serious consideration of policies to retain special needs students, only 49 percent of the departmental chairpersons report that their department/programs have implemented or considered the same policy. These percentages are 63 and 48 for technical institutes and are 79 and 34 for college/universities. The administrators seem to be placing priorities on disadvantaged populations, but there is a gap in how closely programs are following the administration. This finding is buttressed by the rather low correlations between the need and attitude indicators.

The percentage of enrollment that might be categorized as from disadvantaged groups, and particularly those that might be categorized as at-risk is on the order of 10-15 percent. But it

is unlikely that these individuals will be channeled to particular instructors that have received training in techniques and methods appropriate for at-risk students. Thus there appears to be a considerable need to provide more inservice training in this area. Around 30-40 percent of the instructors in 2-year institutions (type 1 and type 2) report this training and 15-30 percent in colleges/universities. Institutions need to assess their comfort with the amount of staff training in this area and take steps to increase the incidence of that training, where warranted.

Finally, it is clear that the postsecondary occupational education institutions are struggling with the roles of their placement offices. While undoubtedly a few institutions use this office to help provide services for at-risk students, the director of placement as a whole, report that function to be a very low priority.

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